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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,219	04/22/2004	Raj P. Singh Gaur	01-2-116	3218

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EXAMINER

FIORITO, JAMES

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/709,219

Applicant(s)

SINGH GAUR ET AL.

Examiner

James A. Fiorito

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1 and 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Silva '507.**

Silva discloses a method for the dissolution and purification of tantalum concentrates found in columbite ore (Column 2). Silva mixes the columbite ore and fluorite ( $\text{Ca F}_2$ ) in a melt, which is subsequently cooled and milled into a "milled slag" prior to a leaching step where a slurry is formed by adding the milled slag to Sulfuric acid. It appears that the milled slag comprises both columbite ore and fluorite (Column 2), and that the slurry is a mixture of both liquids and solids evident by the necessity of a liquid solid separation step following the formation of the slurry (Column 2-3). Silva then teaches separating the tantalum values from the impurities by solvent extraction (Column 4). Silva also discloses that greater than 90% of the tantalum values in the tantalum concentrate are dissolved into the solution (Column 4, Lines 60-66).

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-2,8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silva '507 in view of Campbell '060.**

Silva does not state that the fluoride-containing compound is ammonium bifluoride.

Campbell discloses a purification of tantalum process wherein ammonium bifluoride is mixed with tantalite or columbite ores and melted at high temperature (Column 2-3, and 6)). After the melting step the mixture is cooled and then digested with acid (Column 4, Example 2). Silva and Campbell are analogous are because they are from the same field of endeavor, namely purification of tantalum processes.

At the time of invention it would have been obvious to form the process of Silva including that the fluoride-containing compound  $\text{CaF}_2$  being substituted by ammonium bifluoride in view of the teaching of Campbell. The suggestion or motivation for doing so would have been to effectively separate niobium and tantalum found in tantalite and columbite ores (Column 1 and Column 6).

**Claims 1, 3, 4, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silva '507 in view of Pierret '833.**

Silva discloses the solvent extraction comprises contacting the solution containing the tantalum values and impurities with an organic phase whereby at least a portion of the tantalum values in the solution are extracted into the organic phase, separating the organic phase from the solution (Column 17).

Silva does not state the step of contacting the organic phase with an aqueous medium to extract at least a portion of the tantalum values from the organic phase into the aqueous medium.

Pierret discloses the step of contacting the organic phase with an aqueous medium to extract at least a portion of the tantalum values from the organic phase into the aqueous medium (Column 17). Silva and Pierret are analogous are because they are from the same field of endeavor, namely purification of tantalum processes.

At the time of invention it would have been obvious to form the process of Silva including the step of contacting the organic phase with an aqueous medium to extract at least a portion of the tantalum values from the organic phase into the aqueous medium in view of the teaching of Pierret. The suggestion or motivation for doing so would have been to provide further purification of the tantalum (Column 17).

Pierret also discloses that the organic phase is methyl iso-butyl ketone (Column 17).

**Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silva '507 in view of Pierret '459 as applied to claim 1, 3, 4, 10 and 12 above, and further in view of Singh '146.**

Silva in view of Pierret does not disclose that the tantalum values are precipitated from the aqueous medium by adding ammonium hydroxide.

Singh discloses that the tantalum values are precipitated from the aqueous medium by adding ammonium hydroxide (Column 6 Lines 40-44). Silva, Pierret, and Singh are analogous are because they are from the same field of endeavor, namely purification of tantalum processes.

At the time of invention it would have been obvious to form the process of Silva in view of Pierret including the tantalum values are precipitated from the aqueous medium by adding ammonium hydroxide in view of the teaching of Singh. The suggestion or motivation for doing so would have been to convert  $K_2TaF_7$  into ammonium tantalum (Column 6).

**Claim 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silva '507 in view of Pierret '833 as applied to claim 1,3,4,10 and 12 above, and further in view of Singh '459.**

Silva in view of Pierret does not state that the fluoride-containing compound is ammonium bifluoride.

Singh discloses a purification of tantalum process wherein the fluoride-containing compound is ammonium bifluoride (Abstract). Singh also discloses that  $CaF_2$  is a possible alternative to ammonium bifluoride as a fluoride-containing compound used in the process. Silva, Pierret and Singh are analogous are because they are from the same field of endeavor, namely purification of tantalum processes.

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At the time of invention it would have been obvious to form the process of Silva in view of Pierret including that the fluoride-containing compound  $\text{CaF}_2$  being substituted by ammonium bifluoride in view of the teaching of Singh. The suggestion or motivation for doing so would have been to provide an economical method for purifying tantalum without the use of hydrofluoric acid.

**Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Silva '507 in view of Pierret (US 3117833) and Singh '459 as applied to claims 1, 3-5, 10, 11 and 12 above, and further in view of Singh '146.**

Silva in view of Pierret and Singh '459 does not disclose that the tantalum values are precipitated from the aqueous medium by adding ammonium hydroxide.

Singh '146 discloses that the tantalum values are precipitated from the aqueous medium by adding ammonium hydroxide (Column 6 Lines 40-44). Silva, Pierret, Singh '459 and Singh '146 are analogous are because they are from the same field of endeavor, namely purification of tantalum processes.

At the time of invention it would have been obvious to form the process of Silva in view of Pierret, and Singh '459 including the tantalum values are precipitated from the aqueous medium by adding ammonium hydroxide in view of the teaching of Singh '146. The suggestion or motivation for doing so would have been to convert  $\text{K}_2\text{TaF}_7$  into ammonium tantalum (Column 6).

***Response to Arguments***

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Applicant's arguments with respect to claim 1-2, 8 and 9 have been considered but are moot in view of the new ground(s) of rejection.

Contrary to the arguments of the applicant, Silva '507 teaches the use of columbite ore to form a slurry containing the ore, a fluoride-containing compound and sulfuric acid as stated above. Also, Silva '507 in view of Pierret '833 suggests the addition of tantalite ore, ammonium bifluoride and sulfuric acid into the slurry.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on Standard.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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